

Subfamily *HYPENINÆ*.Genus *ARRADE*, Walker.

Arrade, Walker, xxvii. 82 (1863); Himpsn. Moths of India, iii. p. 99 (1895).

Ziza, Walker, xxvii. 118.

Lophocraspedon, Himpsn. Ill. Het. ix. p. 135 (1893).

Arrade ostentalis.

Ziza ostentalis, Walker, xxvii. 119.

Goping, Perak (*Kunstler*).

XVIII.—On an Amioid Fish (*Megalurus Mawsoni*, *sp. n.*)
from the Cretaceous of Bahia, Brazil. By A. SMITH
WOODWARD, LL.D., F.R.S.

[Plate II.]

ANOTHER small collection of vertebrate fossils from the Cretaceous Formation of Bahia, Brazil, lately presented to the British Museum by Joseph Mawson, Esq., F.G.S., contains the greater part of the skeleton of an Amioid fish. As no typical Amioids have hitherto been discovered in South America, the new specimen is of considerable interest and worthy of special notice.

This fossil comprises the greater part of the fish except the head, and most of it is in counterpart. The actual bones are preserved in the dark shaly matrix, and the specimen is associated with part of a small example of *Diplomystus longicostatus* *.

The best side of the fossil is shown of the natural size in Pl. II. A few vertebræ are evidently lacking anteriorly, but the others are well preserved in almost undisturbed series, and about sixty-five centra can be counted. These centra are much constricted, smooth, and without lateral pits; all are deeper than long, except in the upturned caudal extremity. The ribs and neural arches in the abdominal region are very small and slender. The neural arches in this region are not fused with the centra, of which some are displaced and exhibit the facettes for their support. The neural and hæmal arches in the caudal

* A. Smith Woodward, "On Two Deep-bodied Species of the Clupeoid Genus *Diplomystus*," Ann. & Mag. Nat. Hist. [6] vol. xv. (1895) p. 2, pl. i. fig. 1.

region are larger and stouter and much inclined backwards. In the part of the caudal region up to and including the first hæmal support of the caudal fin there are thirty vertebral centra, but only fifteen neural and hæmal spines, so that throughout this length the centra are duplicated in the peculiar manner so characteristic of the anterior part of the caudal region in *Amia*. Similar duplication of the first two or three vertebræ within the tail is also observable. The relatively small centra in the upturned end of the caudal series correspond in number at least with their apposed hæmal spines. Of the sixteen or seventeen hæmal arches supporting the caudal fin all except the uppermost are stouter than the other hæmal arches and have their spines expanded distally to bear the fin-rays.

The rays of all the fins are stout, closely articulated, and finely divided distally. The rather small pelvic fins (*plv.*) are crushed together, but the anterior border of one is distinct and shown to be fringed with slender fulcra. The pelvic fin-supports resemble those of *Amia* in shape. The dorsal fin arises immediately opposite the insertion of the pelvic pair, and comprises only about fifteen rays, of which the foremost two or three are short and small. It is acuminate in front and somewhat deeper than long, the complete extent of its base-line not exceeding the interval between the pelvic and anal fins. The anal fin (*a.*) is much smaller and shorter than the dorsal, with ten rays. Its anterior border is well preserved, but does not show any fulcra. The caudal fin (*c.*) is very large, with relatively stout rays. It is disturbed at its hinder margin, but does not appear to have been forked. The scales are very thin and deeply overlapping, ovoid in shape, and marked with delicate concentric lines.

The only Amioids with complete vertebral centra sufficiently well known for comparison with the new South-American fossil now described are *Megalurus*, *Amiopsis*, and *Amia*. *Amia* is distinguished by the great extent of its dorsal fin; while *Amiopsis* differs not in this character, but in the deep pitting of the sides of its vertebral centra*. The typical *Megalurus*, on the other hand, agrees in all particulars which can be compared. Mr. Mawson's specimen may therefore be referred to the latter genus, of which it represents a hitherto unknown species, to be appropriately named *Megalurus Mawsoni*. The dorsal fin-rays are fewer and the anal fin is slightly more remote than in any of the typical species

* See especially D. G. Kramberger, Djela Jugoslav. Akad. vol. xvi. (1895) p. 17, pl. iii. fig. 2, pl. iv.

of *Megalurus* from the Lower Kimmeridgian (Lithographic Stone) of Bavaria*. Its pelvic fins are also fringed with fulcra, which have only been observed in one species, *M. altivelis* †. The so-called *Megalurus Damoni* and *M. Austeni*, from the English Purbeck Beds, have the vertebral centra pitted at the sides, and so ought perhaps to be referred to *Amiopsis*.

The occurrence of another European Upper Jurassic fish in the Cretaceous of Brazil becomes less remarkable when it is remembered that a typical *Lepidotus* is one of the commonest fossils in the same formation ‡.

EXPLANATION OF PLATE II.

Megalurus Mawsoni, sp. n.; fish, wanting head, right lateral aspect, nat. size.—Cretaceous; Bahia, Brazil. *a.*, aual fin; *c.*, caudal fin; *plv.*, pelvic fins.

XIX.—On Rutelid and Melolonthid Beetles from Mashonaland and East Africa. By GILBERT J. ARROW.

THE following notes and descriptions deal with a collection sent to the British Museum from Salisbury, Mashonaland, by Mr. Guy A. K. Marshall, together with a few other species which have presented themselves in the course of work upon that collection. These consist of insects from East Africa, Mr. Marshall's collection showing a much closer connexion with the fauna of the regions north and east of Mashonaland than with that of South Africa. A very large proportion, however, of the species of these two families have not been hitherto recorded at all. I have not described the representatives of certain large genera in which it seems to me undesirable to characterize isolated species without being able at least to give a careful comparison with the nearest allied form; and others I have omitted because Mr. Péringuey has informed me of his intention to describe them shortly.

Rutelidæ.

Anomala ustulatipes, Fairm. (*rufa*, Kolbe).—Mr. Marshall

* A. Smith Woodward, Catal. Foss. Fishes B. M. pt. iii. (1895) pp. 363-367.

† A. Wagner, Abhandl. k. bay. Akad. Wiss., math.-phys. Cl. vol. ix. (1863) p. 717.

‡ *Lepidotus Mawsoni*, A. S. Woodward, Ann. & Mag. Nat. Hist. [6] vol. ii. (1888) p. 135.